

WHAT IS CLAIMED IS:

1. A composition useful as a vaccine, comprising
- (i) a vector comprising nucleic acid sequence encoding a tumor-associated antigen or a fragment thereof;
 - (ii) a vector comprising nucleic acid sequence encoding a tumor endothelial marker 8 or a fragment thereof; and
 - (iii) a pharmaceutically acceptable carrier.

2. The composition of claim 1, wherein said tumor-associated antigen is selected from the group consisting of HER2/neu, tyrosinase-related protein 1 (gp75), tyrosinase-related protein 2 (TRP-2) and prostate-specific membrane antigen.

3. The composition of claim 1, wherein said nucleic acid sequence encoding a tumor endothelial marker 8 or a fragment thereof is derived from a mouse or a human.

4. The composition of claim 3, wherein said mouse-derived tumor endothelial marker 8 has a nucleic acid sequence of SEQ ID No. 1.

5. The composition of claim 4, wherein said nucleic acid sequence encodes a tumor endothelial marker 8 protein or a fragment thereof having SEQ ID No. 2 or SEQ ID NO. 3.

6. The composition of claim 3, wherein said human-derived tumor endothelial marker 8 has a nucleic acid sequence of SEQ ID. No. 4.

7. The composition of claim 6, wherein said nucleic acid sequence encodes a tumor endothelial marker 8 protein or a fragment thereof having SEQ ID No. 5 or SEQ ID No. 3.

8. The composition of claim 3, wherein said tumor endothelial marker 8

has an amino acid sequence 80% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

9. The composition of claim 3, wherein said tumor endothelial marker 8
5 has an amino acid sequence 90% homologous to SEQ ID No.2, SEQ ID No. 3 or SEQ ID No. 5.

10. The composition of claim 1, wherein said vector is a plasmid.

10 11. A composition useful as a vaccine, comprising
(i) a vector comprising nucleic acid sequence encoding a tumor-associated antigen or a fragment thereof and nucleic acid sequence encoding a tumor endothelial marker 8 or a fragment thereof; and
(ii) a pharmaceutically acceptable carrier.

15 12. The composition of claim 11, wherein said tumor-associated antigen is selected from the group consisting of HER2/neu, tyrosinase-related protein 1 (gp75), tyrosinase-related protein 2 (TRP-2) and prostate-specific membrane antigen.

20 13. The composition of claim 11, wherein said nucleic acid sequence encoding a tumor endothelial marker 8 or a fragment thereof is derived from either a mouse or a human.

25 14. The composition of claim 13, wherein said mouse-derived tumor endothelial marker 8 has a nucleic acid sequence of SEQ ID No. 1.

30 15. The composition of claim 14, wherein said nucleic acid sequence encodes a tumor endothelial marker 8 protein or a fragment thereof having SEQ ID No. 2 or SEQ ID No. 3.

16. The composition of claim 13, wherein said human-derived tumor

endothelial marker 8 has a nucleic acid sequence of SEQ ID No. 4.

17. The composition of claim 16, wherein said nucleic acid sequence encodes a tumor endothelial marker 8 protein or a fragment thereof having SEQ ID No.

5 5 or SEQ ID No. 3.

18. The composition of claim 13, wherein said tumor endothelial marker 8 has an amino acid sequence 80% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

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19. The composition of claim 13, wherein said tumor endothelial marker 8 has amino acid sequence 90% homologous to SEQ ID. NO. 2, SEQ ID No. 3 or SEQ ID No. 5.

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20. The composition of claim 11, wherein said vector is a plasmid.

21. A method of inducing antitumor immune responses in an individual, comprising the step of administering to said individual the composition of claim 1.

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22. The method of claim 21, wherein said composition is administered by a means selected from the group consisting of intramuscular injection, intradermal injection, subcutaneous injection, intranasal sprays and oral administration.

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23. The method of claim 21, wherein the two vectors of said composition are administered to said individual simultaneously or sequentially.

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24. The method of claim 21, wherein the vectors of said composition are carried by delivery vehicles selected from the group consisting of liposomes and bacteria.

25. The method of claim 21, wherein said individual has been diagnosed as having cancer or is at risk of developing cancer.

26. A method of inducing antitumor immune responses in an individual, comprising the step of administering to said individual dendritic cells comprising nucleic acid or protein selected from the group consisting of the composition of claim 1 and proteins encoded by the vectors of said composition.

27. The method of claim 26, wherein said individual has been diagnosed as having cancer or is at risk of developing cancer.

28. A method of inducing antitumor immune responses in an individual, comprising the step of administering to said individual the composition of claim 11.

29. The method of claim 28, wherein said composition is administered by a means selected from the group consisting of intramuscular injection, intradermal injection, subcutaneous injection, intranasal sprays and oral administration.

30. The method of claim 28, wherein the vector of said composition is carried by a delivery vehicle selected from the group consisting of liposomes and bacteria.

31. The method of claim 28, wherein said individual has been diagnosed as having cancer or is at risk of developing cancer.

32. A method of inducing antitumor immune responses in an individual, comprising the step of administering to said individual dendritic cells pulsed with or induced to express nucleic acid or protein selected from the group consisting of the composition of claim 11 and protein encoded by the vector of said composition.

33. The method of claim 32, wherein said individual has been diagnosed with cancer or is at risk of developing cancer.

34. A composition useful as a vaccine, comprising

- a. a vector comprising nucleic acid sequence encoding a tumor-associated antigen or a fragment thereof;
- b. a recombinant protein comprising tumor endothelial marker 8 or a fragment thereof; and
- c. a pharmaceutically acceptable carrier.

35. The composition of claim 34, wherein said tumor-associated antigen is selected from the group consisting of HER2/neu, tyrosinase-related protein 1 (gp75), tyrosinase-related protein 2 (TRP-2) and prostate-specific membrane antigen.

36. The composition of claim 34, wherein said recombinant protein comprising tumor endothelial marker 8 or a fragment thereof is derived from a mouse or a human.

37. The composition of claim 36, wherein said mouse-derived tumor endothelial marker 8 protein or fragment thereof has an amino acid sequence of SEQ ID No. 2 or SEQ ID No. 3.

38. The composition of claim 37, wherein said amino acid is encoded by nucleic acid of SEQ ID No. 1.

39. The composition of claim 36, wherein said human-derived endothelial marker 8 protein or a fragment thereof has an amino acid sequence of SEQ ID No. 5 or SEQ ID No. 3.

40. The composition of claim 39, wherein said amino acid is encoded by nucleic acid of SEQ ID No. 4.

41. The composition of claim 36, wherein said tumor endothelial marker 8 has an amino acid sequence 80% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

42. The composition of claim 36, wherein said tumor endothelial marker 8 has an amino acid sequence 90% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

5 43. The composition of claim 34, wherein said vector is a plasmid.

44. A method of inducing antitumor immune responses in an individual, comprising the step of administering to said individual the composition of claim 34.

10 45. The method of claim 44, wherein ~~the vector of~~ said composition is administered by a means selected from the group consisting of intramuscular injection, intradermal injection, subcutaneous injection, intranasal sprays and oral administration.

15 46. The method of claim 44, wherein the vector of said composition and the recombinant protein of said composition are administered to said individual simultaneously or sequentially.

20 47. The method of claim 44, wherein the vector of said composition is carried in a delivery vehicle selected from the group consisting of liposomes and bacteria.

25 48. The method of claim 44, wherein said individual is diagnosed as having cancer or is at risk of developing cancer.

30 49. A composition useful as a vaccine, comprising:
a recombinant protein comprising a tumor associated antigen or a fragment thereof;
a recombinant protein comprising tumor endothelial marker 8 or a fragment thereof; and
a pharmaceutically acceptable carrier.

50. The composition of claim 49, wherein said tumor-associated antigen is selected from the group consisting of HER2/neu, tyrosinase-related protein 1 (gp75), tyrosinase-related protein 2 (TRP-2) and prostate-specific membrane antigen.

5 51. The composition of claim 49, wherein said recombinant protein comprising tumor endothelial marker 8 or a fragment thereof is derived from a mouse or a human.

10 52. The composition of claim 51, wherein said mouse-derived tumor endothelial marker 8 protein or fragment thereof has an amino acid sequence of SEQ ID No. 2 or SEQ ID No. 3.

15 53. The composition of claim 52, wherein said amino acid is encoded by nucleic acid of SEQ ID No. 1.

54. The composition of claim 51, wherein said human-derived endothelial marker 8 protein or a fragment thereof has an amino acid sequence of SEQ ID No. 5 or SEQ ID No. 3.

20 55. The composition of claim 54, wherein said amino acid is encoded by nucleic acid of SEQ ID No. 4.

25 56. The composition of claim 51, wherein said tumor endothelial marker 8 has an amino acid sequence 80% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

30 57. The composition of claim 51, wherein said tumor endothelial marker 8 has an amino acid sequence 90% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

58. A method of inducing antitumor immune responses in an individual,

comprising the step of administering to said individual the composition of claim 49.

59. The method of claim 58, wherein said composition is administered by a means selected from the group consisting of intramuscular injection, intradermal injection, subcutaneous injection, intranasal sprays and oral administration.

60. The method of claim 58, wherein the recombinant proteins of said composition are administered to said individual simultaneously or sequentially.

61. The method of claim 58, wherein said individual is diagnosed as having cancer or is at risk of developing cancer.

62. A composition useful as a vaccine, comprising:
a recombinant protein comprising a tumor associated antigen or a fragment thereof;
a vector comprising nucleic acid sequence encoding a tumor endothelial marker 8 or a fragment thereof; and
a pharmaceutically acceptable carrier.

63. The composition of claim 62, wherein said tumor-associated antigen is selected from the group consisting of HER2/neu, tyrosinase-related protein 1 (gp75), tyrosinase-related protein 2 (TRP-2) and prostate-specific membrane antigen.

64. The composition of claim 62, wherein said nucleic acid sequence encoding a tumor endothelial marker 8 or a fragment thereof is derived from either a mouse or a human.

65. The composition of claim 64, wherein said mouse-derived tumor endothelial marker 8 has a nucleic acid sequence of SEQ ID No. 1.

66. The composition of claim 65, wherein said nucleic acid sequence encodes a tumor endothelial marker 8 protein or a fragment thereof having SEQ ID No.

2 or SEQ ID No. 3.

67. The composition of claim 64, wherein said human-derived tumor endothelial marker 8 has a nucleic acid sequence of SEQ ID No. 4.

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68. The composition of claim 67, wherein said nucleic acid sequence encodes a tumor endothelial marker 8 protein or a fragment thereof having SEQ ID No. 5 or SEQ ID No. 3.

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69. The composition of claim 64, wherein said tumor endothelial marker 8 has an amino acid sequence 80% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

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70. The composition of claim 64, wherein said tumor endothelial marker 8 has an amino acid sequence 90% homologous to SEQ ID No. 2, SEQ ID No. 3 or SEQ ID No. 5.

71. The composition of claim 62, wherein said vector is a plasmid.

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72. A method of inducing antitumor immune responses in an individual, comprising the step of administering to said individual the composition of claim 62.

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73. The method of claim 62, wherein the said composition is administered by a means selected from the group consisting of intramuscular injection, intradermal injection, subcutaneous injection, intranasal sprays and oral administration.

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74. The method of claim 62, wherein the vector of said composition and the recombinant protein of said composition are administered to said individual simultaneously or sequentially.

75. The method of claim 62, wherein the vector of said composition is

carried in a delivery vehicle selected from the group consisting of liposomes and bacteria.

- 5 76. The method of claim 62, wherein said individual is diagnosed as having cancer or is at risk of developing cancer.